FORM	1449*	

INFORMATION DISCLOSURE STATEMENT

IN AN APPLICATION

(Use several sheets if necessary)

Docket Number:	Application Number:
11669.116USU1	09/592,695

Applicant: COCHRAN ET AL.

Filing Date: JUNE 13, 2000 Group Art Unit: 1627

Customer No.: 23552

			U	.S. PATENT DOCUMEN	ITS			
EXAMINER INITIAL	DOCUMENT NO.		DATE	NAME	CLASS	SUBCLASS		G DATE OPRIATE
The	5,627,024		05/06/1997	Maruyama et al.				
1	5,766,905		06/16/1998	Studier et al.				
1	5,821,047		10/13/1998	Garrard et al.				· · ·
V	6,180,343		01/30/2001	Anderson et al.				•
	<u> </u>		FOR	EIGN PATENT DOCUM	ENTS			
	DOCUM	IENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	TRANS	LATION
							YES	NO
-18w	WO 95/34	683	12/21/1995	PCT			-,	
7)	WO 97/29	185	08/14/1997	PCT				
	WO 00/20	574	04/13/2000	PCT		,		
	WO 00/77	194	12/21/2000	PCT				
		OTHER	DOCUMENTS	(Including Author, Title, [Date, Pertinent F	ages, Etc.)		<u> </u>
TOW		Alexander et al., "Thermodynamic Analysis of the Folding of the Streptococcal Protein G IgG-Binding Domain B1 and B2: Why Small Proteins Tend to have High Denaturation Temperatures", <u>Biochemistry</u> , 31:3597-3603 (1992)					g Domains 597-3603	
		Allen et al., "Finding prospective partners in the library: the two-hybrid system and phage display find a match", TIBS, 20:511-516 (1995)					d a match",	
-		Barbas, "R	ecent advances	in phage display", Current	Opinion in Biot	echnology, 4:526-5	530 (1993)	
		Bass et al., Proteins: S	Bass et al., "Hormone Phage: An Enrichment Method for Variant Proteins with Altered Binding Properties", Proteins: Structure, Function, and Genetics, 8(4):309-314 (1990)					
Y		Becktel an	Becktel and Schellman, "Protein Stability Curves", Biopolymers, 26:1859-1877 (1987)					
,		Biachi et al., "A Conformationally Homogeneous Combinatorial Peptide Library", <u>J. Mol. Biol.</u> , 247:154-160 (1995)						
		Blanco et a Biology, 1	al., "A short line (9):584-590 (Se	ar peptide that folds into a r ptember 1994)	native stable B-l	nairpin in aqueous	solution", <u>Str</u>	uctural
		Bradbury a	and Cattaneo, "T	he use of phage display in i	neurobiology",	rends in Neurosci	ence, 18:243-	249 (1995)
1	Choo and Klug, "Designing DNA-binding proteins on the surface of filamentous phage", Current Opinion in Biotechnology, 6:431-436 (1995)							

EXAMINER	T- West on	DATE CONSIDERED	8/29/00	

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- shew	Chothia, "Coiling of B-Pleated Sheets", J. Mol. Biol., 163:107-117 (1983)
	Clackson and Wells, "In vitro selection from protein and peptide librairies", <u>Trends Biotechnol.</u> , 12:173-184 (1994)
	Clackson et al., "Making antibody fragments using phage display libraries", Nature, 352:624-628 (1991)
	Cochran et al., "A Minimal Peptide Scaffold for B-Turn Display: Optimizing a Strand Position in Disulfide-Cyclized B-Hairpins", J. Am. Chem. Soc., 123:625-632 (2001)
	Cortese et al., "Identification of biologically active peptides using random libraries displayed on phage", <u>Current Opinion in Biotechnology</u> , 6:73-80 (1995)
	Cortese et al., "Selection of biologically active peptides by phage display of random peptide libraries", <u>Current Opinion in Biotechnology</u> , 7:616-621 (1996)
,	Cunningham and Wells, "High-Resolution Epitope Mapping of hGH-Receptor Interactions by Alanine-Scanning Mutagenesis", Science, 244:1081-1085 (1989)
	Cwirla et al., "Peptides on phage: a vast library of peptides for identifying ligands", <u>Proc. Natl. Acad. Sci. USA</u> , 87(16):6378-6382 (1990)
	Dunn, I.S., "Phage display of proteins", Current Opinion in Biotechnology, 7:547-553 (1996)
	Efimov et al., "Bacteriophage T4 as a Surface Display Vector", Virus Genes, 10(2):173-177 (1995)
1	Espinosa and Gellman, "A Designed B-Hairpin Containing a Natural Hydrophobic Cluster", <u>Agnew. Chem. Int. Ed.</u> , 39(13):2330-2333 (2000)
	Felici, "Selection of antibody ligands from a large library of oligopeptides expressed on a multivalent exposition Vector", J. Mol. Biol., 222:301-310 (1991)
	Fowlkes et al., "Multipurpose Vectors for Peptide Expression on the M13 Viral Surface", <u>BioTechniques</u> , 13(3):422-427 (1992)
ı	Gill and von Hippel, "Calculation of Protein Extinction Coefficients from Amino Acid Sequence Data", Analytical Biochemistry, 182:319-326 (1989)
1	Gram et al., "In vitro selection and affinity maturation of antibodies from a naive combinatorial immunoglobulin library", Proc. Natl. Acad. Sci. USA, 89(8):3576-3580 (1992)
1	Greenwood et al., "Peptides from Plasmodium Falciparum Circumsporozoite Protein as Antigens", <u>J. Mol. Bio.,</u> 220:821-827 (1991)
	Gururaja et al., "A novel artificial loop scaffold for the noncovalent constraint of peptides", Chem. & Biol., 7:515-527 (2000)
,	Havel, "An Evaluation of Computational Strategies for Use in the Determination of Protein Structure from Distance Constraints Obtained by Nuclear Magnetic Resonance", Prog. Biophys. Molec. Biol. , 56:43-78 (1991)
¥	Hogrefe et al., "Cloning in a bacteriophage lambda vector for the display of binding proteins on filamentous phage", Gene, 137:85-91 (1993)

						
EXAMINER	十 、	Ullesens	DATE CONSIDERED	8 pg	1/03	

FORM 1449*	INFORMATION DISCLOSURE STATEMENT	Docket Number: 11669.116USU1	Application Number: 09/592,695
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TRW	Honda et al., "Thermodynamics of a B-Hairpin Structure: Evidence for Cooperative Formation of Folding Nucleus", J. Mol. Biol., 295:269-278 (2000)
•	Hoogenboom et al., "Multi-subunit proteins on the surface of filamentous phage: methodologies for displaying antibody (Fab) heavy and light chains", Nucleic Acids Research, 19(15):4133-4137 (1991)
	Iannolo et al., "Modifying Filamentous Phage Capsid: Limits in the Size of the Major Capsid Protein", <u>J. Mol.</u> <u>Biol.</u> , 248:835-844 (1995)
4	Jiang et al., "Display of a PorA peptide from Neisseria meningitidis on the bacteriophage T4 capsid surface", Chemical Abstracts, (Abstract No. 44380q) 128(5):147 (1998)
d	Johnson et al., "Analysis of Data from the Analytical Ultracentrifuge by Nonlinear Least-Squares Techniques", Biophys. J., 36:575-588 (December 1981)
	Kang et al., "Linkage of recognition and replication functions by assembling combinatorial antibody Fab librarie along phage surfaces", Proc. Natl. Acad. Sci. USA , 88:4363-4366 (1991)
. 1	Karle et al., "Cyclic Cystine Peptides. Antiparallel B-Sheet Conformation for the 2-Membered Ring in Boc-Cys Val-Aib-Ala-Leu-Cys-NHMe", American Chemical Society, 110:1958-1963 (1988)
,	Kessler et al., "Peptide Conformations. 42. ^{1,2} Conformation of Side Chains in Peptides Using Heteronuclear Coupling Constants Obtained by Two-Dimensional NMR Spectroscopy", J. Am. Chem. Soc., 109:6927-6933 (1987)
)	Kortemme et al., "Design of a 20-Amino Acid, Three-Stranded B-Sheet Protein", Science, 281:253-256 (July 10 1998)
τ	Lindqvist and Naderi, "Peptide presentation by bacteriophage P4", <u>FEMS Microbiology Reviews</u> , 17:33-39 (1995)
	Lowman and Wells, "Monovalent Phage Display: A method for Selecting Variant Proteins from Random Libraries", Methods: Comp. to Methods Enzymol., 3(3):205-216 (1991)
,	Lowman et al., "Selecting High-Affinity Binding Proteins by Monovalent Phage Display", Biochemistry, 30(45):10832-10838 (1991)
,	Makowski, L., "Structural constraints on the display of foreign peptides on filamentous bacteriophages", Gene, 128:5-11 (1993)
3	Malik and Perham, "New vectors for peptide display on the surface of filamentous bacteriophage", Gene, 171:45 51 (1996)
ı	Markland et al., "Design, construction and function of a multicopy display vector using fusions to the major coat protein of bacteriophage M13", Gene, 109:13-19 (1991)
,	Marks et al., "By-passing immunization: human antibodies from V-gene libraries displayed on phage", J. Mol. Biol., 222:581-597 (1991)
,	McCafferty et al., "Phage antibodies: filamentous phage displaying antibody variable domains", Nature, 348:552 554 (1990)
1	McGregor, "Selection of proteins and peptides from libraries displayed on filamentous bacteriophage", Molecula

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EXAMINER	1.	allowed	DATE CONSIDERED 8/29/03
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FORM 1449*	
•	INFORMATION DISCLOSURE STATEMENT

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Docket Number:

	Biotechnology, 6:155-162 (1995)
Tan	McLafferty et al., "M13 bacteriophage displaying disulfide-constrained microproteins", Gene, 128:29-36 (1993)
Y	Merrifield, R.B., "Solid Phase Peptide Synthesis. I. The Synthesis of a Tetrapeptide", <u>J. Am. Chem. Soc.</u> , 85:2149-2154 (1963)
s	Minor and Kim, "Measurement of the B-sheet-forming propensities of amino acids", Nature, 367:660-663 (February 17, 1994)
	Munoz et al., "Folding dynamics and mechanism of B-hairpin formation", Nature, 390:196-199 (November 13, 1997)
d	O'Boyle et al., "Identification of a novel peptide substrate of HSV-1 protease using substrate phage display", Virology, 236:338-347 (1997)
	O'Neil and Hoess, "Phase display: protein engineering by directed evolution", <u>Current Opinion in Structural Biology</u> , 5:443-449 (1995)
•	Privalov and Gill, "Stability of Protein Structure and Hydrophobic Interaction", <u>Advances in Protein Chemistry</u> , 39:191-234 (1988)
•	Ramirez-Alvarado et al., "B-Hairpin and B-Sheet Formation in Designed Linear Peptides", <u>Bioorganic & Medicinal Chemistry</u> , 7:93-103 (1999)
•	Ramirez-Alvarado et al., "Conformational analysis of peptides corresponding to all the secondary structure elements of protein L B1 domain: Secondary structure propensities are not conserved in proteins with the same fold", <u>Protein Science</u> , 6:162-174 (1997)
,	Ramirez-Alvarado et al., "De novo design and structural analysis of a model B-hairpin peptide system", Nature Structural Biology, 3(7):604-612 (July 1996)
	Ramirez-Alvarado et al., "Role of B-Turn Residues in B-Hairpin Formation and Stability in Designed Peptides", J. Mol. Biol., 273:898-912 (1997)
•	Ren et al., "Cloining of linear DNAs in vivo by overexpressed T4 DNA ligase: construction of a T4 phage hoc gene display vector", Chemical Abstracts, (Abstract No. 215644q) 127(16):155 (1997)
	Ren et al., "Phage display of intact domains at high copy number: A system based on SOC, the small outer capsid protein of bacteriophage T4", <u>Protein Science</u> , 5:1833-1843 (1996)
	Ren et al., "Phage T4 SOC and HOC display of biologically active, full-length proteins on the viral capsid", Gene, 215:439-444 (1998)
	Rietman et al., "The solution structure of the synthetic circular peptide CGVSRQGKPYC NMR studies of the folding of a synthetic model for the DNA-binding loop of the ssDNA-binding protein encoded by gene V of phage M13", Eur. J. of Biochem., 238:706-713 (1996)
	Russell and Cochran, "Designing Stable B-Hairpins: Energetic Contributions from Cross-Strand Residues", <u>J. Am. Chem. Soc.</u> , 122:12660-12601 (2000)
¥.	Scott and Smith, "Searching for peptide ligands with an epitope library", Science, 249:386-390 (1990)

EXAMINER	T.	Wessens	7	DATE CONSIDERED	8/29/	03	

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Tow	Sibanda et al., "Conformation of B-Hairpins in Protein Structures", J. Mol. Biol., 206:759-777 (1989)
	Skelton et al., "Determination of the Solution Structure of the Peptide Hormone Guanylin: Observation of a Novel Form of Topological Stereoisomerism", <u>Biochemistry</u> , 33:13581-13592 (1994)
	Smith and Scott, "Libraries of Peptides and Proteins Displayed on Filamentous Phage", Methods in Enzymology, 217:228-257 (1993)
,	Smith, "Surface display and peptide libraries", Gene, 128:1-2 (1993)
,	Smith, G.P., "Surface presentation of protein epitopes using bacteriophage expression systems", <u>Curr. Opin. Biotechnol.</u> , 2(5):668-673 (1991)
	Soumillion et al., "Phage display of enzymes and in vitro selection for catalytic activity", <u>Applied Biochemistry and Biotechnology</u> , 47:175-190 (1994)
٨	Stanger and Gellman, "Rules for Antiparallel B-Sheet Design: D-Pro-Gly is Superior to L-Asn-Gly for B-Hairpin Nucleation", J. Am. Chem. Soc., 120:4236-4237 (1998)
,	Syud et al., "NMR-Based Quantification of B-Sheet Populations in Aqueous Solution through Use of Reference Peptides for the Folded and Unfold States", <u>J. Am. Chem. Soc.</u> , 121:11577-11578 (1999)
•	Thennarasu and Nagaraj, "Synthetic Peptides Corresponding to the B-Hairpin Loop of Rabbit Defensin NP-2 Show Antimicrobial Activity", <u>Biochem. & Biophys. Res. Comm.</u> , 254:281-283 (1999)
r .	Walse et al., "Structure of a cyclic peptide with a catalytic triad, determined by computer simulation and NMR spectroscopy", J. Comput. Aided Mol. Des., 10:11-22 (1996)
,e	Wells et al., "Cassette Mutagenesis: an Efficient Method for Generation of Multiple Mutations at Defined Sites", Gene, 34(2-3):315-323 (1985)
,	Zerella et al., "Autonomous folding of a peptide corresponding to the N-terminal B-hairpin from ubiquitin", <u>Protein Science</u> , 8:1320-1331 (1999)
. 1	Zerella et al., "Structural characterization of a mutant peptide derived from ubiquitin: Implications for protein folding", Protein Science, 9:2142-2150 (2000)
•	Zhang et al., "Synthetic CD4 exocyclic peptides antagonize CD4 holoreceptor binding and T cell activation", Nature Biotechnology, 14:472-475 (April 1996)
•	Zhang et al., "Synthetic CD4 exocyclics inhibit binding of human immunodeficiency virus type 1 envelope to CD4 and virus replication in T lymphocytes", Nature Biotechnology, 15(2):150-154 (Feb. 1997)
,	Zhong, "Conformational Mimicry of a Chlamydial Neutralization Epitope on Filamentous Phage", <u>Journal of Biological Chemistry</u> , 269(39):24183-24188 (1994)
V	Zoller and Smith, "Oligonucleotide-directed Mutagenesis Using M13-derived Vectors: An Efficient and General Procedure for the Production of Point Mutations in Any Fragment of DNA", Nucl. Acids Res., 10(20):6487-6500 (1982)

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